



Instituting a Production System Approach to Submarine Construction

A **System** is a group of interacting elements acting in accordance with a set of rules to form a unified whole. It is an organized framework defined by the set of principles and procedures designed to achieve a common purpose. In manufacturing terms, a **Production System** is the combination of actions and processes used throughout the production of goods.

These concepts first arose in the automotive industry with Toyota, where standardized processes and production lines enabled the lean manufacturing techniques that were captured in the Toyota Production System. These concepts quickly spread to other industries. Now nearly all major manufacturing from furniture to aerospace is executed with a production system paradigm to achieve greater velocity and value to the customer. Shipbuilding is clearly different from automobiles. There is not a ship coming off the production line every 30 seconds, submarines are low volume production with extended build cycles over several years. So is the Production System model worth considering?

The answer is definitely “Yes”.

Operations, with the support of the Construction Readiness teams at Quonset Point and Groton, has been exploring the implementation of a Production System approach to submarine construction. Many of our construction processes are not stable, they have high variability and lack repeatability and predictability. When measured, the operational efficiency of many of our manufacturing processes are less than 50%. This is often accepted as the nature of shipbuilding but it doesn't have to be that way. While some of our instability is a result of external influences, much of it is the result of our own internal processes. The goal of an EB Production System is to achieve true operational excellence through the consistent application of standard proactive planning, preparation and management processes. It will become the set of rules, guiding principles, tools and their standard application that will define our manufacturing processes and institutionalize a structured construction approach. Covering all aspects of our business from build sequence, process design, standard methods, equipment readiness to capacity & resource planning through execution institutionalizing a Production System approach will increase the availability and quality of design and planning products; improve material availability; improve accuracy in the manpower planning, spatial planning, critical resource demands and daily planning processes; allowing for a more effective and efficient execution of the manufacturing plan.

EB's Production System consists of 14 specific elements aligned to three major subsystems; Plan, Prepare and Execute.



PLAN

The Plan Subsystem is intended to optimize the manufacturing schedule of major milestones and align them to Takt times to eliminate variation in the manufacturing and outfitting processes. Additionally, it will integrate capacity planning and controls into construction schedules and utilizing detailed work sequenced schedules and standard work methods tied to work packages with repeatable kits of material.

PREPARE

The Prepare Subsystem focuses on creating optimized, time-phased work center layouts with standard unit set-ups and establishes a construction pre-start process with time fence rules and actions to ensure accountability for all deliverables to support construction start and identification of risk areas and impact assessment.

EXECUTE

The Execute Subsystem establishes standard tools and work management practices for Operations management, develops process based metrics to better set daily goals and expectations and implement shop floor visual management techniques.

Some of these elements have been called ‘Back to Basics’ or ‘Manufacturing 101’ and, in many ways they are. However, the success of a system lies not the sum of its parts but in the product of its interactions. We need to look at our production not as individual parts but as pieces working together; organizations not executing to their priorities but truly aligned to a common goal - delivering value to the customer. As an Electric Boat team, the challenges we now face require us to change from our traditional paradigm and to think and act differently to be successful.

Robert Barlow

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The Groton WIB is produced by EB Communications.

To submit ideas, contact rmarques@gdeb.com



Continuous Improvement

“None of us is as smart as all of us.”

-Ken Blanchard, author of One Minute Manager”

How to Identify Meaningful Improvement Opportunities

If you are asked for two ideas, do you find it tough to just come up with something that you can do that will actually be helpful at making your job tasks easier, safer, and smarter? We’re going to share some best practices from other teams for figuring out how to ask for employee input so we can achieve two ideas per employee goal, while still adhering to our Core Values. The leadership team is committed to listening to your input, and recognizing you for your contributions towards improving your tasks in ways that help you and your coworkers.

1. Take credit for what you’ve already done. Walk as a group and take a look at what has changed in the past few months. Are any of the changes related to process improvements your team came up with and did?
2. Schedule a monthly brainstorming session using [this technique](#) to talk about recent challenges or upcoming opportunities. This takes a traditional hot wash and bumps it up a level.
3. Make it safe by finding low risk ways to see if the idea works well. Let your team know how they can test something on a trial basis or area so any outcome is ok, and the attempt is recognized as a success.
4. Set up an innovation or collaboration zone/time. This might be a monthly ‘Shark Tank’ employees can bring ideas to with reps from different support areas, a bulletin board with recent successful ideas, an innovation showcase fair with recent successes, or any other set-up that encourages employees to think about the way they have always done things, and look at it differently.
5. Ask the team what they want to learn about. Help them by working together to find ways to improve current processes while letting them explore what they are interested in.
6. Show the team how one good idea has sincerely produced real results and why.
7. Enable cross-silo collaboration by having front line employees from different organizations work together. Ask teams that come after you to see how your work affects them and what changes they wish you’d make so their work can go quicker. It might a quick change to a template or something bigger, but you’ll never know if you don’t ask.
8. Create out-of-the-box thinking opportunities. Read an article together, bring up a new concept, listen to a TED talk. Each person will interpret or be inspired differently based on their experiences and perspective.



Technique is found here: [\\us-ct-eb01\EBDepts\Eng.670\Continuous_Improvement_Public\Groton Ops Demo\Employee Engagement\Idea Generation\Brainstorming PICK.pptx](#)

2022 Holiday Turkey Distribution

Holiday Turkey distribution is a way for the EB community to kick off the holiday season together and for management to personally thank employees for their hard work and contributions to our mission. Please see below for this year's turkey distribution schedule.

Turkey Distribution Schedule:

Tuesday, Dec. 6, 2022

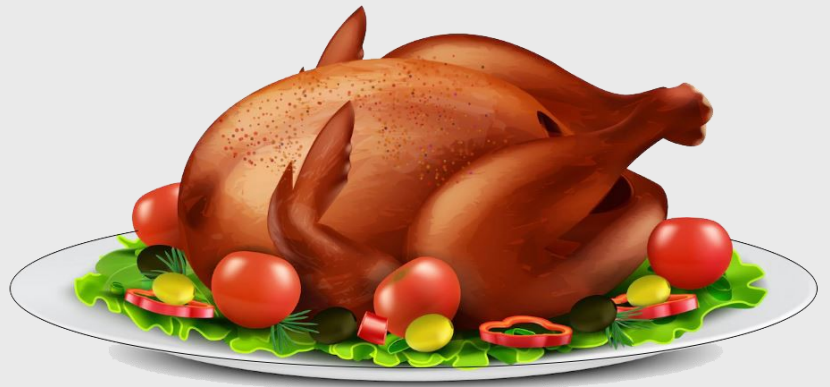
- ***Kings Highway*** | Noon
- ***Long Hill Rd.*** | 12:45 p.m.
- ***Sub Base*** | 2:00 p.m. – 4:00 p.m.
- ***Groton*** | 2:00 p.m. – 6:00 p.m.

Wednesday, Dec. 7, 2022

- ***Groton*** | 6:30 a.m. – 7:30 a.m.
- ***Groton*** | 2:00 p.m. – 3:00 p.m.
- ***New London*** | 2:00 p.m. – 5:00 p.m.
- ***Groton*** | 11:00 p.m. – Midnight

Thursday, Dec. 8, 2022

- ***North Stonington*** | Noon
- ***Shaw's Cove*** | Noon
- ***New London*** | 4:00 p.m. – 6:00 p.m.



Notes:

- Please have your turkey voucher ready when you arrive at the tent for pick-up. You will drop your voucher in a bin, ***pick up your own turkey*** and exit the tent.
- ***Bulk pick-ups*** (any amount you cannot carry on your own) **will be accommodated in Groton M Lot on Thursday, Dec. 8, between 2:30 p.m. and 4:30 p.m. ONLY.** We will not accommodate bulk pick-ups on any other day or at any other location. You must present official, hard copy vouchers for the number of turkeys requested.
- Employees located at ***Kings Highway, Long Hill Road, Sub Base, Shaw's Cove and North Stonington*** should pick up their turkeys at the trucks parked outside the facility during your site's designated time.
- If you're going to be away, you can have a friend, co-worker or supervisor pick up your turkey—**they must have your voucher to do so.**

Unclaimed turkeys will be donated to the Gemma E. Moran United Way/Labor Food Bank. There is no need to submit your voucher for donation—if you don't turn it in, your turkey will automatically be donated. If you want to donate your turkey to another charity, feel free to make your own arrangements.



- Limited Edition 2022 USS Nautilus Holiday Ornament!
- We Build Freedom gear! Check it off your gift list today!
- FREE GIFT with \$100 or more purchase - USS Columbia Ornament!
- Soft & comfortable SSN-781 California Apparel - back by popular demand!

Hours of Operation

Bldg 4: 9:30am to 4pm
 Bldg 104: 8am to 4pm
 New London: 7am to 2pm

Flu Shots and COVID Bivalent Boosters Available Through EB Family Wellness Center & Pharmacy

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DIRECTORY

When calling from an outside line, remember to dial 433 and the last four digits of the numbers below.

EMERGENCY	3-3333
Ambulance.....	3-3344
Fire Department.....	3-3617
EEO Officer.....	3-4167
Benefits.....	3-4201
Employment.....	3-7386
Environmental.....	3-2791
Ethics Hotline.....	1-800-433-8442
Payroll.....	3-3702
Safety.....	3-2811
Security.....	3-5530
Van Tran.....	3-7603
Timekeeping.....	3-6604
Training.....	3-0591
Yard Hospital.....	3-3470
Rad Con.....	3-5019